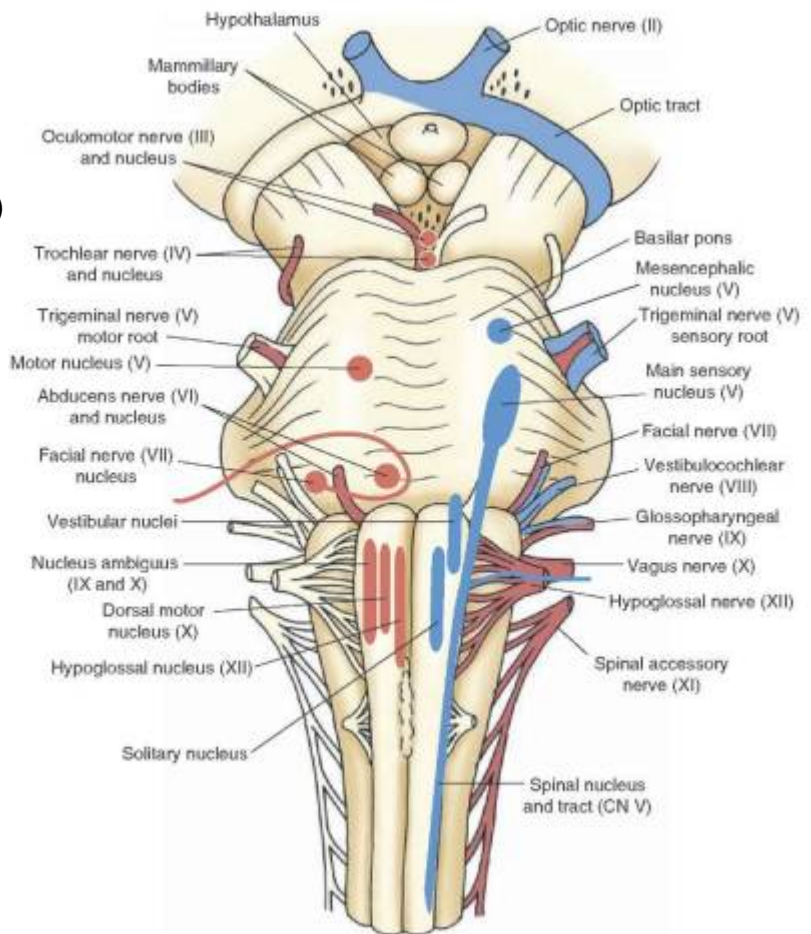


# Glossopharyngeal nerve

The glossopharyngeal nerve, known as the **ninth cranial nerve**, is a mixed nerve that carries afferent sensory and efferent motor information. It exits the **brainstem** out from the sides of the upper **medulla oblongata**, just rostral (closer to the nose) to the **vagus nerve**. The motor division of the glossopharyngeal nerve is derived from the basal plate of the embryonic **medulla oblongata**, while the sensory division originates from the cranial **neural crest**.



The glossopharyngeal nerve helps move the muscles of the throat and carries information from the throat, tonsils, and tongue to the brain.

The preganglionic nerve fibers originate in the **inferior salivatory nucleus** of the rostral medulla and travel anteriorly and laterally to exit the brainstem between the medullary olive and the inferior cerebellar peduncle with the other components of CN IX. Note: These neurons do not form a distinct nucleus visible on cross-section of the brainstem.

A.C.G. noted the presence of an intracranial interneural connection between the glossopharyngeal and vagus nerves during microvascular decompression surgery in a patient suffering from hemifacial spasm. To further investigate the approximate incidence and significance of such an interneural connection, the authors studied 40 adult human cadavers (80 sides) and prospectively evaluated 16 additional patients during microvascular procedures of the posterior cranial fossa.

In the cadavers, the incidence of intracranial neural connections between the glossopharyngeal and vagus nerves was 2.5%. The only such connection found in our series of living patients was in the patient in whom the connection was initially identified. These interconnections were more common on the left side. Based on our findings, we classified these neural connections as Types I and II. In the cadavers, the length and width of this connection were approximately 9 mm and 1 mm, respectively. Histological analysis of these connections verified their neural content.

Although these connections are rare and the significance is unknown, knowledge of them may prove

useful to surgeons who operate in the posterior fossa region so that they may avoid inadvertent traction or transection of these interconnections. Additionally, such connections might be considered in patients with recalcitrant neuralgia after microvascular decompression and rhizotomy of the glossopharyngeal nerve<sup>1)</sup>.

## Glossopharyngeal neuralgia

see [Glossopharyngeal neuralgia](#).

<sup>1)</sup>

Tubbs RS, Mortazavi MM, Loukas M, Shoja MM, Cohen-Gadol AA. Intraoperative and anatomical descriptions of intracranial connections between the glossopharyngeal and vagus nerves: clinical implications. J Neurosurg. 2011 Jul;115(1):179-81. doi: 10.3171/2011.2.JNS101757. Epub 2011 Mar 11. PubMed PMID: 21395388.

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